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THE INDUSTRIAL REVOLUTION IN POTTERY IN JAPAN

—SETO AND NAGOYA—

By Yasuo MISHIMA*

FORWORD

In probing the history of the industrial revolution in Japan, too much emphasis has apparently been placed in the past on clarifying the process of growth of the fibre industry (cotton and silk) to the negligence of other fields. With this in view, an effort will be made in the following sections to make clear how the pottery industry, as an example of a “non-typical industrial revolution,”** was organized and what relation it had with other productive activities, and how, under such relationship, it could adapt itself to the impact of an industrial revolution. The study has been undertaken with main emphasis focussed on tracing the development of the relation between the industrial capital in Seto (northeast of Nagoya) and the wholesalers’ commercial capital in Nagoya. (Additionally, “pottery” in this monograph pertains to both pottery and porcelain.)

1. REORGANIZATION OF POTTERY CAPITAL.

Following the Meiji Restoration, the feudal clan of Owari ceased to exist and the Seto district was liberated from the jurisdiction of the feudal administrative agency of the “Mizuno Daikansho” and placed, in July 1868, under the rule of the Tōhō Sōkansho (Eastern Administration) of Aichi Prefecture, a local subordinate organ of the new Meiji regime.

The monopoly policy and the *Kuramoto**** system of feudal merchant agents hitherto pursued by the Owari clan were abolished. Seto, while being deprived of the protective patronage of the feudal clan, on one hand, was, on the other hand, freed from various feudal guild restrictions such as limitation of each household to one potter’s wheel and of kiln stock.

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** By “non-typical industrial revolution,” we mean industrial revolutions in iron, coal, copper, pottery and salt etc. excluding cotton.

*** *Kuramoto* means privileged merchant subordinated to each feudal clan.

For one thing, it could be said that Seto was thus allowed to keep pace with the newly-acquired free economy. While we do not know clearly what situation actually prevailed in Seto village in the early years of Meiji, it is recorded that the local population, according to a religious registry dated 1870, included 1,300 males and 1,201 females, bringing the total to 2,501.

One contemporary record says, in part:

"The destitute among the villagers number about 295 households, or about 800 in population. A majority of these find it difficult to keep living by farming alone and engage in wage-earning by being employed in pottery. Now, a general depression in pottery is forcing the industry to discharge quite a number of their employees....."

This amply shows that those destitute families who found it impossible to keep living by farming alone numbered no less than 295 out of a total of about 550 households and that most of these families barely kept up their meager living as wage-earners and apprentices to potters. It is likewise evident that, losing old markets due to the political chaos before and after the Meiji Restoration, the pottery entrepreneurs had to meet the business depression by discharging large numbers of their employees. Now, it should be noted that the business depression in these years was mainly due to the fact that the pottery products manufactured in the Seto district hitherto, were only those such as special water bowls, tea pots, flower-vases for the tea ceremony, braziers, stepping-stones, flower-pots, garden stone-steps and *sake* bottles, for which there was no great mass demand (according to the catalogue of the great domestic exhibition in 1876). Most of these products were luxury items and not suitable for the destitute farming classes which composed a major part of the domestic consumers. The business depression in pottery persisted, except for a short period of business boom after the Kyūshū Rebellion in 1877, until the industry discovered a new outlet for its products in exports to foreign countries around 1887. The Meiji government, while importing machinery and raw materials required for the expanding military factories and other key industries, vigorously encouraged, as a means to counter-balance such imports, the export of raw silk and tea, and also pottery products which could be manufactured with domestic materials. The energetic execution of this policy made it imperative that the pottery be fully able to meet the demands of the foreign markets. To meet the new trends, the pottery capitalists of Seto were eager to import new techniques. In 1874, a certain Tomotarō Katō, a pottery craftsman, was sent to Tōkyō to study how to use plaster molds and the new-fashioned kilns designed by Dr. Wagner, a German engineer invited

by the government to assist in the importation of modern scientific techniques. With new techniques thus introduced in rapid succession, Seto, as early as December 1878, saw the number of kilns increased to 305 (containing 50 round kilns, 180 small kilns, and 75 inclining kilns).¹⁾ Kiln workers increased to 132 and other employees to 875, a marked increase over the year 1869.

Nagoya, about 18 kilometers away from Seto, was in the feudal era a center of local distribution of pottery through the Seto district and the eastern part of Gifu Prefecture. The pottery capitalists in Nagoya gradually underwent a qualitative metamorphosis from being feudalistic commercial capitalists to being export wholesalers. One interesting instance is recorded in which a subordinate feudal samurai called Tadaatsu Mizutani, following the disintegration of his clan (Owari), is said to have boldly discarded his old samurai pride and personally proceeded to Seto to make purchases of local pottery products. This was simply an instance of the general tendency among the samurai class, who together with the change of times, had to become more business-minded just in order to support themselves. Their wholesale capital began to control Seto. These Nagoya wholesalers put themselves in the service of major exporters in Tōkyō and Kōbe, such as the Morimura-gumi* which had been insignificant saddle merchants at Yedo until the early years of Meiji, the Van Dyne Commercial Company, the Matsumura Commercial Company, the Kansai Trading Company and the Takifuji Commercial Company. In the face of the new situation thus brought about, the small-scale producers in Seto had no alternative than to resign themselves to a subordinate position under such wholesale commercial capitalists, who, as they were not exclusively engaged in pottery, refused to set up any branch offices at Seto but maintained them in Nagoya, from whence purchases could be made at nearby Seto. Thus, around 1882 almost no shops dealing in pottery could be observed in Seto, business being conducted almost exclusively directly by Nagoya wholesalers. The Morimura-gumi was shrewd enough to see the trends of the market in the United States, and planned to have Seto artisans make chinaware for export. The first experiment, which proved a great success, was made in coffee cups in 1883. The next step taken at Seto was the placing of orders for the production of tea sets including pitchers, sugar and cream pots. Thus, Seto pottery took the first step towards a basic change to mass production of daily necessities for export. However, to begin such large scale production,

1) History of Aichi Prefecture, Vol. III, p. 450.

* "gumi" means a commercial company.

the small scale of Seto production was a restriction. In 1883, local occupations at Seto were classified as follows: Farming, 389 households, combining farming pottery, 147 households, industry, 27 households, farming (as landowner) and pottery middlemen, 6 households, commerce, 20 households, and others, 182 households. The existence of 27 households engaged in industry indicates the emergence of exclusive pottery manufacturers, who had by this time broken away from farming. The fact that 147 households combined farming and pottery, on the other hand, shows that Seto was, as a whole, in a stage of small-scale semi-agricultural and semi-industrial production. It was obvious that these obsolete mechanisms of production operated on a small scale could not properly function as demand arose for mass production for export. In view of this, Nagoya wholesaler capitalists formulated a process by which the initial stages of manufacture involving digging of earth, its refining, forming and the firing of the unglazed pottery were undertaken by small-scale manufacturers in Seto, while the semi-finished products, thus produced, were bought up by the wholesale dealers of Nagoya, who had them finished with pattern-paintings and firing in Nishiki-gama (finishing kilns) by experts exclusively employed by them. Pattern-paintings were made either at the private homes of these experts

Table I. Pattern-Painting Undertaken by Nagoya Wholesalers.*

Name	Category	Location	Personal Name	Inaugurated in
Pottery Glazing Station	Glazing and Firing	Ryōkawa-ramachi	Rokunosuke SHIMIZU	March, 1883
Matsumura Porcelain Manufactory	Producing, Glazing and Firing	Minami Takehira-chō	Kyūsuke MATSUMURA	February, 1885
Takifuji Glazing Station	Glazing and Firing	Minami Sotobori-chō	Manjirō TAKIFUJI	February, 1888
Pottery Manufactory	Glazing and Firing	Shindeki-machi	Yakurō NAKAMURA	April, 1893

or at the small *Manufakturen*** operated by the wholesalers. This process of manufacture, in which production was partially undertaken by the wholesalers, designed as a means to meet the demands for mass production, came

* Table I. is from "Bisan Hōkan." 尾参寶鑑 Vol. III, p. 159.

** "*Manufaktur*" has a special meaning as a capitalistic plant which employs 10-50 laborers, who, using manual tools, are arranged for a type of co-operation based on the division of labor. "*Manufaktur*" is the special stage which is situated between handicraft and modern mechanized factory in the development of industrial history.

to be widely employed after about 1887 or somewhat earlier. Table I. indicates the process of the participation by the wholesalers in production. The prevalence of the process steadily brought the small local producers in Seto and big wholesale capitalists in Nagoya into an increasingly closer relationship. The industrial producers in Seto, virtually void of any commercial functions, when they faced the new and different problem of acquiring new markets overseas, could expand only through the medium of big commercial capitalists in Nagoya, while, on the other hand, the capitalists in Nagoya, by dealing in the merchandise produced by Seto's own expanding productive capacity, could increase their own business profits. Thus, it is seen that, up to 1887, the commercial capitalists in Nagoya and the industrial capitalists of Seto were in a position of mutually dependent transactional relations, and made a parallel development.

According to Table II, the pottery industry at Seto showed a sharp decline in its production following the adoption in 1881 of a policy of deflation by the then Finance Minister Masayoshi Matsukata. The price for a simple piece averaged 5.9 *sen* in 1881, 3.9 *sen* in 1882 and 2.9 *sen* in 1883. During the deflationary period, the big demand arising from increasing contact with foreign markets and various domestic factors indicated in such a sharp decline in price, combined to speed up the inevitable disintegration of small manufacturers at Seto: they were either elevated to a position of full-fledged capitalistic *Manufakturen* (and land owners, at the same time) or degraded to the rank and file of working proletarians. It is needless to say that it was the destitute farming households in Higashi-Kasugai county, Aichi Prefecture, of which Seto is the center, which furnished most of the labor, as wage earners, to manufacturers of Seto as their newly-acquired position as modern capitalistic *Manufakturen* was steadily consolidated.

Table II. Seto during the Deflationary Period.*

Years	1878	1879	1880	1881	1882	1883
Number of pieces manufactured	2,960,000	3,950,000	5,170,000	4,750,000	4,290,000	4,140,000
Price (Yen)	230,411	255,036	295,636	283,603	171,510	122,814
Price per one piece (Sen)	7.7	6.4	5.7	5.9	3.9	2.9

(1 Yen=100 Sen)

* Table II. is from "History of Aichi Prefecture." Vol. III, p. 452.

Table III. Business Condition in 1885. *

Laborers employed	12	14	16	17	18	21	24	34	36	Total: 14 8% as against total number of manufact- uring households.
Manufact- uring Households	1	5	1	1	1	2	1	1	1	

It was against such a background that Seto pottery production by degrees acquired shape as a modern capitalistic *Manufaktur*. A look at Table III. shows that, in 1885, there were fourteen plants where between 12 and 36 wage-earners (presumably including apprentices and those working at individual homesteads) each were employed. The number equalled approximately 8% of all enterprises at Seto. If, for the convenience of statistics, each plant which employed twelve workers at a minimum is numbered as a *Manufaktur*, 8% of the Seto pottery industry had attained the stage of a modern capitalistic *Manufaktur* based on a division of labor and co-operation as early as 1885. While its gradual transformation into such a modern capitalistic *Manufaktur* increased in tempo between 1890 and 1910, the process was technically substantiated with the steady introduction of new technical and engineering devices, involving the adoption of the long-distance precipitation method, of the clay-disturber and the clay-compressor in the earth refining process, the use of plastic molds in the forming process, the transition to copper-plate printing from hand-drawing in the painting process, the employment of oxidized cobalt in the producing of pigments, and the transition to limestone from *isu*-ashes in the producing process of glazing.

Now, four industrial capitalists at Seto, S. Itō, K. Katō, G. Katō and M. Kawamoto, in the face of the deflation, attempted to exploit a new market through their own endeavor, and, for that purpose, succeeded in 1881 in mobilizing financial support from both the Strong & Co. (British) and Ichitarō Morimura (founder of the Morimura-gumi company, later known as Ichizaemon Morimura), and, by dint of such support, established an exclusively-contracted sales agent known as the *Jikōsha*, in Tōkyō. The adventure, however, ended in failure; in 1885, the agent was dissolved for want of funds. Similar attempts were repeated several times after this (e. g., the Japan Pottery and Porcelain Sale Company was established in Tōkyō in 1887), all of which, however, failed due to insufficiency of necessary circulating funds. The result was that their sales markets were left to the mercy of local Nagoya wholesaler-capitalists. In 1885, when the effects of

* Table III. is from "Bulletin of Geopolitics" Vol. II, p. 84.

the deflation were felt most severely in Seto, they moved to set up the *Seto Jikōgumi* (the Association of Pottery Producing Industrialists in Seto), the working regulations of which included such provisions as:

Article 18. Sales contracts for goods shall be concluded only in the presence of the director and vice-director of the association.

Article 19. No goods shall be made wantonly without approval of the association.

Article 20. The quality of the goods produced shall be strictly classified into superior, medium and inferior, and no indiscriminate selling shall be allowed.

Article 21. Payments for goods sold shall be received at the offices of the association, which shall take it upon itself to have them duly delivered to the appropriate recipient.

It is evident that this was an attempt on the part of the *Seto Jikōgumi* to place production and sales under a set of strict restrictions to prevent small producers from directly contacting wholesaler-capitalists and from selling their products on behalf of the wholesaler-capitalists. Their attempt, however, proved ineffective eventually, in the face of the growing pressure of the wholesaler-capitalists, and they gradually fell under their control.

This coincided with the decline of the old pottery craftsmen who had enjoyed special feudal privileges under the protection of the Owari clan. The case of Tamikichi Katō offers a typical example in this connection. Through three generations, the Katō family was patronized by the local feudal lord, under whose special permit, it enjoyed the rare privilege of carrying a family name and a sword as well as being a recipient of a fixed amount of allowance in kind. (Of sixteen families which had been permitted to have family names and swords, Tamikichi's family was the highest in social position at the end of feudal era). The fortune of the Katō family, in spite of the change of times, managed to retain its old shape, until, in 1889-90, the family became a victim of a deceitful business transaction, as a result of which, and, coupled with a succession of unfortunate family happenings, it was eventually lost irrevocably and the renowned Katō family entirely disappeared from among the pottery producers in Seto. These producers have by now been completely subordinated to the modern commercial capitalists. Taking the place of the old pottery craftsmen who gradually headed toward decline, was a group of new pottery industrialists, who, while contenting themselves with being given money in advance by the Nagoya merchants who were both wholesalers and money-lenders simultaneously, found themselves steadily transformed into modern capitalistic *Manufakturen* closely linked with foreign markets by the medium of the Nagoya merchants. It

was unavoidable that this group by degrees came to the fore and formed the main forces of the Seto industry. Around 1882, this particular group occupied a mere 20% of the entire pottery industrialists,²⁾ but around 1900 the percentage, as will be discussed later, showed a phenomenal rise to 90%.

The percentage of pottery exports in the total production of pottery products in Japan stood at 28.2% in 1878-1882 and at 43.2% in 1883-1887.³⁾ The figure amply explains the general tendency followed by the pottery industry of Japan in these years, when, as has already been described earlier, production of tea-sets and other daily tablewares grew to a remarkable extent to meet demands abroad.

2. SUBSEQUENT GROWTH AND LABOR CONDITIONS

After the deflation, the Seto industry, in the face of a business boom seen after 1887, experienced a phenomenal expansion. According to Table IV, the period between 1872 and 1892 saw Seto's population grow by about 1.4 times, while the number of households doubled. This shows that, keeping pace with the modernization of the pottery industry at Seto, manual laborers continued to pour into the region from the neighbouring villages of Mizuno, Asahi and Hatayama. Cheap

Table IV. The Poulation of Seto.*

Years	Households	Population
1872	663	2984
1882	771	3871
1892	1431	5381

labor, thus supplied from the lowest class of destitute farming villages in the neighborhood, had to work under typically miserable labor conditions for half-modernized small-scale *Manufakturen*. Labor involved in the pottery industry consisted of outdoor labor, comprising earthdigging and transportation of the materials and of such indoor work as earth-refining, forming, glazing, pottery-filling, firing, painting, finishing and packing, as well as various minor secondary work.

These different operations, further, were properly linked by a number of manual workers. We will give a survey of what these various work processes actually were and under what specific conditions they were conducted.

(A) Material was dug out from the earth in a highly primitive fashion, in which pickaxes were used. Electric motors were introduced for the first time as late as 1920, while those engaged in this state of labor were mostly

2) Reports of Investigation for Promotion of Seto City, p. 56.

3) Takako Sanbe: Process of Transition of Peasants' Cottage Industry, p. 193.

* Table IV. is from "Reports of Investigation for Promotion of Seto City" p. 61.

poor local farmers who offered their manual labor when it was not required on their fields. Labor, thus offered, was extremely cheap, while the major portion of this earth work depended on the selection ability of the naked human eye. And cheapness of labor worked to prevent an early introduction of mechanized processes.

(B) The process comprising forming, glazing and kiln operation was mostly conducted in the plant which was simply a portion of the dwelling quarters especially rearranged for that purpose. Sometimes such a plant was erected adjacent to the living sections. In either case, workers employed here consisted of teen-age youngsters who, as apprentices, had to undergo relentless courses of training and learning for five or six years. These apprentices were of two different types: one stayed at the plant day and night, where board and bed were offered free. They had to work without any pay except an insignificant amount of occasional pocket money. The others went daily to the plant from their respective homes. These young workers toiled like slaves from dawn till sunset. Such sweatshop labor persisted until about 1907, when the introduction of electric power in the forming process simplified the operation and helped to elevate the status of these apprentices to that of more or less modern laborers.

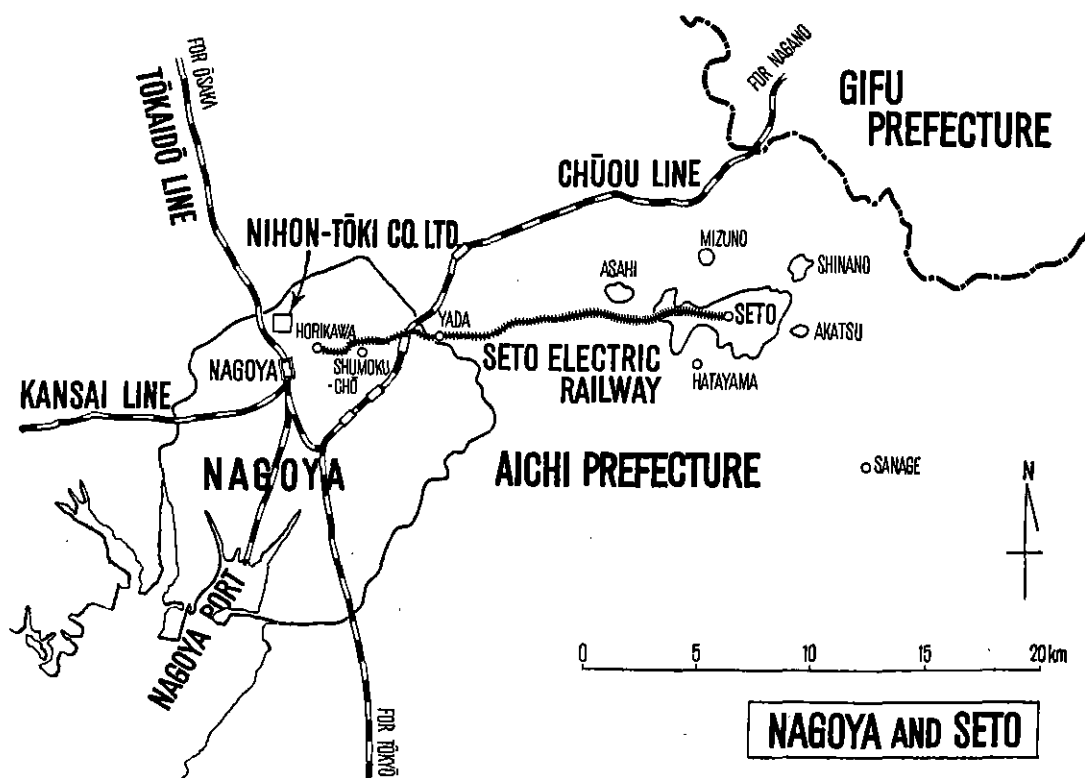
(C) The employment of women and juvenile laborers in the small-scale household industry was a common and prevalent practice. Especially in the pottery industry, the percentage of their employment was comparatively high, while they were chiefly employed in the process of transportation and drying or disposal of the material stuffs. It was early recognized, however, that their employment as a substitute for mechanical installations entailed a sharp physical deterioration and premature death. The condition prevailing was such that small boys even under the age of ten were forced to work for hours, many times far into the night. In addition, many school children were employed as working hands after school (such was the case, also, with the match manufacturing industry in many parts of Japan). That school children were asked to work with their families was a fact that can not afford to be overlooked in connection with the labor question involved in the Seto pottery industry. It was quite a common practice for these teen-age juveniles to be forced to assist in the open-air drying of the semi-finished products or in the simple coloring of dolls in order that the products be delivered on time. Besides, young boys were widely utilized in such trivial jobs as delivery, painting, pattern-drawing, finishing, packing and other odd jobs.

These women and children who offered labor were paid out of what their operating household earned. But, in many cases, they received no

pay at all, and it was often the case that what should have been paid them as wages was erroneously construed as profit.

Thus, it is seen that the required cheap and abundant technical labor of the pottery industry at Seto was supplied by the local destitute farming population.

In its intrinsic shape, the labor system still retained many features of the semi-feudalistic tenancy system, and combined the old system of apprenticeship, plus daily wage workers and subsidiary work by women and children. The conditions of labor under which these apprentices were asked to work were so bad that in most cases they could not stay at one post for any long period of time, and, to fill the gap thus caused, the employer had to look for new labor frequently. The going and comings were so common that these pottery workshops were often referred to as "railway stations." Permanent workmen were very rare, and, shifts of men were generally so frequent that at least 30 percent of the employees usually moved out of a shop during a year. The percentage, of course, rose higher in the case of medium and small-scale plants. The persistent existence of cheap and abundant labor, then, was the main factor preventing the mechanization of the Seto industry and permitting the continuance of the small scale *Manufakturen* and cottage producers over a long period



of time. Produced with such cheap labor, the *Setomono*, meaning pottery articles of Seto, could be marketed so cheaply that in spite of the persistent accusations about the practice of social dumping, they could virtually dominate the markets of China, Manchuria, South-east Asia and Australia.

In 1887, the Kyōto Tōki Kaisha (the Kyōto Pottery Company) took the initiative in importing a set of modern machines from France in an energetic attempt to set up the first mechanized factory in Japan, to which between twenty and thirty workers were dispatched from Seto. The company, however, was bankrupt after two years. The cause for this can be found in the fact that about this time the workers, with experience in the type of labor specialization common to modern capitalistic *Manufaktur*, who were the necessary premise for mechanized production, were less than ten percent of the entire group. The majority knew only obsolete techniques fit for household manual labor and, naturally, totally lacked the capacity to operate modern imported machines. And, this fact points to one obvious instance of contradictions latent in the industrial policy pursued by the absolutistic Meiji government, for, in its impatient endeavour to modernize Japan's industries, it imported modern Western industrial machines, disregarding the situation in which the Japanese pottery industry actually stood.

3. ON THE EVE OF AN INDUSTRIAL REVOLUTION.

Seto after 1887 saw its own transformation into a modern capitalistic *Manufaktur*, and, at the same time, deepening dependence on the wholesaler-capitalists in Nagoya. Around 1890, Seto was able to produce articles of the various shapes of a "fancy" line. Semi-finished pottery articles for export were mostly done in Seto, which, naturally, brought a remarkable business boom to the local economy. The Morimura-gumi was quick to conclude a special contract with several Seto pottery *Manufakturen* where required semi-finished articles were manufactured. Its financial leadership was thus gradually but steadily established, while such wholesalers as the Kansai Bōeki Kaisha (the Kansai Trading Company) and the Van Dyne Commercial Company, in competition, moved in to link themselves with specially-contracted plants, the makers of semi-finished products, which, brought to Nagoya, were finished with pattern painting by exclusively contracted artisans or *Manufakturen* which were managed by the wholesalers themselves. The amount of pottery articles finished by the Nagoya wholesaler-manufacturers stood, in 1885, at ¥31,000, and, in 1886, ¥42,000, in value. It rose to ¥360,000 in 1889,⁴⁾ with the advent of a business boom,

4) Tatsuya Naramoto: *Emergence of the Modern Pottery Industry*, p. 77.

when the pottery industry established itself as a promising export industry. A sharp decline in the exchange rate of the Japanese *yen* further spurred the trend. In the early years of Meiji, the rate stood at \$100 against ¥100. The value of the *yen* then gradually declined, and around 1894, it was quoted at below \$50, which helped to make Japan's export industry a highly profitable enterprise. Reflecting this, the pottery products finished by the Nagoya wholesale-manufacturers in 1895, amounted to ¥500,000 in value. The wholesale-manufacturers then numbered 31, and the Nishiki-gama (finishing kilns) 225, where 1,200 workers were employed.⁵⁾ About 1890, the Morimura-gumi had its pattern-painting *Manufakturen* dispersed at Tōkyō (four plants), Kyōto (one plant) and Nagoya (one plant). In 1896, in the light of a new trend which was making itself manifest, they hastily moved all these *Manufakturen* to Shumoku-chō in Nagoya, where a group of *Manufakturen* succeeded in systematizing the flow of production. The Morimura-gumi was not alone in this bold enterprising attempt; those wholesale-manufacturers with large capital resources undertook in rapid succession to place the Seto pottery industrialists under their exclusive capitalistic dominance. A statistical survey made in 1904 of the pottery industry in Aichi Prefecture records the following: "The principal manufacturers in operation around 1900 numbered 396 in Seto, 31 in Akatsu village and 111 in Shinano village. Of the above, 16 were operating under a special contract with the Morimura-gumi in Nagoya, and the value of the products thus produced amounted to about ¥200,000. On the other hand, 6 had a special contract with the Tashiro Company in Nagoya, and 5 with the Tsuzuki Company, also in Nagoya. Not a few others, also, were operating under a similar exclusive contract with the Hirako, Hirose and other leading wholesale-manufacturers in Nagoya." It is also recorded that, of the Seto products intended for export, a mere 10 percent were finished goods. These were exported to China, and included an insignificant portion of artistic articles sent to Western countries. The remaining 90 percent consisted of semi-finished goods, which, before being exported, had to be painted, glazed and re-fired. Thus, these goods were sent *en masse* to the plants operated by the Morimura-gumi, Takifuji Company and other wholesalers with whom the Seto industrialists had special contracts. These products were named Kinran-yaki. Most, however, found their way to the Morimura *Manufakturen*, where painting, glazing and firing was done. The products, thus finished, were mostly exported to America. It is seen, thus, that the production of the Morimura-gumi, who had concentrated by mov-

5) Bisan Hōkan, Vol. III, p. 171.

ing from Tōkyō and Kyōto, was already in 1900 the greatest of all the wholesale capitalists. The scale of these finishing *Manufakturen* in Nagoya attained a further phenomenal expansion after 1896, as shown in Table V, and, in 1903, the workers averaged 53 per *Manufaktur*.

Table V. Glazing *Manufakturen*
Operating in Nagoya.*

	1896	1903
Number of <i>Manufakturen</i>	32	35
Number of workers	1250	1815
workers per one <i>Manufaktur</i>	39	53

(100 pieces, standard). In substance, such a form of manufacturing was identical to a system of dispersed plants, where a round of affiliated plants would achieve the result similar to what would be possible by a major plant, while the advantages of a system of divided operation were fully assured. On the part of the wholesale-manufacturers, likewise, it was more profitable to have a chain of sub-contracted medium and small plants operated with sweated labor than to have their own big plants set up with their own funds. The formula, however, had its inevitable limitations. True, it was appropriate simply for meeting the increased amount of production and for effecting a uniformity of the designs and patterns of the products. However, it never was instrumental in effecting a fundamental change in the formula of production.

Now, turning to the export markets, we find that Japan's pottery exports to America, the main market for them, rose to \$469,707 in value in 1901 from a mere \$97,244 in 1886.⁶⁾ The rate of volume imported by America, however, registered only a rise to 4.8% from 1.9%, which indicated the difficulty encountered by Japan, a late comer in making inroads in the American market, where her predecessors, Germany, England and France, had previously established their dominance. It should be noted, however, that during the period under review, the rate of England went down to 30% from 62%, while, on the other hand, Germany rose to 37% from 17% to virtually rule the American market. Thus, for the newly-

* Table V. is from Tatsuya Naramoto: *Emergence of Modern Pottery Industry*, p. 77.

6) Tatsuya Naramoto *Ibid.* p. 87.

rising Japanese pottery industry, Germany posed as a most formidable rival to tackle. A certain Japanese businessman, who happened to be in America for training at that time is quoted to have remarked that the American people bought Japanese pottery articles for the novelty of Japanese painted designs and traditional shapes, whereas German products were purchased for sheer necessity. It was a fact that out of every five dozens of imported Japanese articles, half a dozen or a dozen was invariably found, on examination, to lack uniformity both in size and shape.⁷⁾ In point of utility and uniformity, thus, Japanese products could not compare to German, English and French products. This was because of the difference in production efficiency between the modern mechanized factories in these Western countries which had completed their industrial revolutions and the semi-modernized wholesaler's *Manufaktur* system still in force in the Nagoya area, the principal producing area of export pottery in Japan. While partly successful in assuring a mass production in uniformity, Japan's system of production proved no match for the streamlined operation possible in foreign modern mechanized factories. To overcome all the disadvantages accruing from this, an "industrial revolution", as far as the traditional wholesaler-manufacturers were concerned, had to be faced as a historical necessity. The demand added to the urgency of an industrial revolution, when, with the completion of a modern Nagoya port with accommodations for 10,000-ton class ocean liners on the New York line, the American market demand for superior-quality goods brought its weight directly upon the local pottery industry.

4. INDUSTRIAL REVOLUTION—TWO TYPES.

The tendency toward transformation into modern capitalistic *Manufaktur* at Seto, which was manifest from about 1885, gradually increased its tempo. In 1895, the plants employing between 12 and 60 which could be classified as such modern capitalistic *Manufaktur* numbered 33, occupying 12.6 % of the total;⁸⁾ in 1905, those plants using between 10 and 90 numbered 82, occupying 21.0% of the total.⁹⁾ Thus, it is seen that while some of the Seto industrialists came to operate on a bigger scale, most of them, with no accumulated capital, continued to complain of their lack of funds and, naturally, of difficulty of business operation. Their difficulty was heightened by the refusal on the part of the banks, to finance funds on credit because articles of pottery were not good security. The whole-

7) Bulletin of the Association of Nippon Pottery Industry, March, 1896.

8) Bisan Hōkan. Vol. III, pp. 159-161.

9) Bulletin of the Association of Nippon Pottery Industry, Vol. 15,

sale capitalists in Nagoya would intervene by advancing funds which usually amounted to one-third or one-fourth of the total estimated value of the products, the accounts being settled upon the completion and delivery of the contracted articles. This formula unavoidably allowed the wholesalers to make decisions about the price level of the products more or less arbitrarily. These wholesalers were in a position to exert constant pressure on the small-scale manufacturers, who, under this pressure, financial and otherwise, were left with no margin at their disposal for effecting any substantial improvement in the quality of their products, except that they were allowed to retain a bare sustenance out of what meagre profit was allowed them. Too eager to secure an operating fund, these small producers were in no position to adjust their production to the expectable demand, with the result they had to content themselves with the uncalculated production of goods of inferior quality. They were forced to remain in the position of debtors; they had no room to think of the promotion of their enterprises. According to Table VI, while the number of manufacturers showed an increase between 1903 and 1907, except for the duration of the Russo-Japanese War, the scale of operation on an average substantially remained the same, which was mainly attributable to the high degree of exploitation at the hands of the creditor-wholesalers, and the overall productivity at Seto was virtually at a standstill.

About 1882, approximately 20% of the small pottery industrialists at Seto had their operating funds advanced by the wholesalers in Nagoya. But, after 1900, the situation deteriorated to such an extent that, out of 396 local industrialists, no less than 346 were generally considered to be dominated by wholesale capital under this system of advance.¹⁰⁾

Table VI. Enterprises Operated in Seto Between 1903 and 1907.*

Years	1903	1904	1905	1906	1907
Number of manufacturers	497	412	470	550	582
Number of workers employed	2856	3784	3605	4509	4381
Number of workers per manufacturer	5.7	9.1	7.6	8.2	7.5

Thus, at the time Seto turned to the production of daily utensils, the

10) Statistical Survey in 1904 of the Pottery in Aichi Prefecture.

* Table VI. is from "History of Higashi-Kasugai County," pp. 407-8.

wholesaler capitalists in Nagoya were instrumental in opening the way for the Seto products to foreign markets, but they subsequently worked as a factor to deprive the Seto industry of the possibility to accumulate industrial capital, and were an obstacle to the development of its productivity, by squeezing out a very high rate of commercial profit.

In spite of all this, however, Seto could not evade the wave of a modern "industrial revolution." In 1902, the experiment of a coal furnace conducted at the Seto Pottery School was greeted with success. This ushered in a wave of coal furnaces installed at local pottery plants. This was the first step of the transition toward the coal furnace from the inclined kiln which had required pine logs as fuel. To keep up with the trend, Mitsui and Mitsubishi moved to set up their respective coal sales agencies in Seto. This incidentally demonstrated that the supplies of fuel resources, which had up to then constituted one of the principal geographical advantages of Seto, had already moved into the gigantic Mitsui and Mitsubishi financial networks, from the hands of neighbouring landowners who owned timber land in the mountains.

As for the earth to be used in pottery, the traditional practice was for each small producer separately to buy the powdered stones made at water mills in the Sanagé area, and the earth from Seto and Akatsu. Mingled together, they were processed in a corner of each workshop. Following the formation of the Seto Union of Pottery Industrialists and Merchants in 1899, all this procedure was placed under the direct supervision of the Union. The manufacturing method, however, remained unchanged. In view of this, and, for the purposes of mechanizing this particular section of the Seto pottery industry, increasing its own commercial profit, and, also, with a view to securing the material for a big mechanized factory which was contemplated in the near future, the Morimura-gumi, in 1903, took the initiative in installing a Western-style water-filtering station. With a steam boiler installed, production of more than 375 k.g. of processed clay was thus made possible.¹¹⁾ Because of the mechanized process of the water-filtering station, the clay available was found to be of uniform quality, perfectly suitable for making large quantities of articles of identical designs. Naturally, the local producers welcomed this novel device without exception. The first step, thus, was taken for converting the motive power from water to steam, keeping pace with the rapid rise in the demand.

With regard to the forming process, electricity as motive power was first introduced from about 1907, which amounted to a virtual revolutionary

11) same as 10).

step. The consequent simplification of the handling of the potter's wheel, which had until that time been operated manually, rendered years of apprenticeship practically unnecessary, and the workers employed in this process, now equipped with modern techniques, could assert themselves to be "modern" workers. Production, consequently, registered a marked increase. Electricity was subsequently introduced in the process of material earth manufacturing. The linking of electrical power, on the other hand, with small-scale manufacturing establishments, where sweated labor still prevailed, served as an obstacle to the tendency toward a concentration of operation.

With steadily mounting production in evidence, Seto, situated in a small mountaineous basin about 18k.m. to the northeast of Nagoya, felt keenly the lack of adequate means of transportation. A survey made in 1902 showed, in substance, that due to the lack of maritime traffic as well as means of railway transportation, the entire 20,000 tons of local products had to be transported to Nagoya by horsedrawn carts, for which an estimated sum of ¥32,000 had to be paid per year.¹²⁾ To save the situation, the Seto Auto-Railway inaugurated the operation of gasoline cars to Yada, on the outskirts of Nagoya, in April, 1905. The line was transformed into an electric railway in December, 1906, known as the Seto Electric Railway. In March 1911, the entire line between Seto and Horikawa, in Nagoya, was opened to public service. The revolutionary development of transportation facilities, thus brought about, enabled Seto to stand on its own modern feet in regard to the transportation of its products and of new material earth and coal.

True, the successive introduction of coal furnaces, steam-powered earth-producing facilities, the operation of potter's wheels with electrical power and the inauguration of an electric railway transportation service should properly be labelled as marking an apt start for an "industrial revolution." However the importation of modern mechanized and electrical facilities was carried out by small-scale pottery industrialists who depended upon the sweated labor of the local destitute workers. These industrialists were exploited financially by the advancing wholesaler interests, and under their dominating influence, the industrialists continued to be deprived of chances of accumulating their own industrial capital. This fact should not be overlooked. Under such limitations, the mechanization of the Seto industry could never be comprehensive. The appearance of operation of large-scale factories, thus, was simply out of the question; it just amounted to the partial introduction of mechanical devices in the various manufact-

12) same as 10).

uring processes of small-scale production. The "industrial revolution," thus, was highly incomplete and immature.

The contemporary American market demanded porcelain tablewares with fringe patterns painted on a pure-white base, instead of a greyish base as heretofore. Such work requiring a high degree of facility and technique could not be done at Seto. Conscious of this, the Morimura-gumi again took the initiative, and established the Nihon Tōki Gōmei Kaisha (the Nippon Pottery Unlimited Partnership, changed into Nippon Pottery Co. Ltd. in July, 1917) in January, 1904, capitalized at ¥100,000, with the intention of setting up a major modern factory. In imitation of the German industry, they imported from Germany a complete set of the most modern machines, including grinders, press-filtering machines, disturbers and magnetic machines for material refining processes, mechanical potter's wheels and friction presses for forming processes, and two- or three-stage German-type furnaces (with downward flame) and glazing coal furnaces for firing processes. With these machines installed, the new factory could properly be called a big modern manufacturing plant. The power used here was 365 horsepower, while the workers employed consisted of 431 men and 79 women in 1909. The factory was located at Noritake in Nishi Ward of Nagoya City because of the geographical convenience for the transportation of coal and Amakusa stone, absolutely necessary for manufacturing hard-quality porcelain articles. The full-fledged industrial revolution in pottery, the first of its kind in modern Japan, was thus initiated by the Morimura-gumi, a representative wholesaler capitalist in Nagoya. By 1912, Japan was enabled to export to America pure-white base porcelain articles in place of the old greyish ones. Thus, the brittleness and lack of uniformity of the pottery which had been produced by Nagoya wholesaler's *Manufactur* were overcome.

Following on the heels of their predecessor, Ichitarō Tashiro and Umetarō Katō, in 1908, jointly established the Chigusa Pottery Factory. They were followed by Tomeshirō Terasawa, who, in 1911, founded the Teikoku Pottery Factory (later named the Nagoya Pottery Factory), while, in 1916, the Shirakawa Pottery Factory began operation. It should be noted that all these factories, inaugurated in rapid succession in Nagoya, belonged to the same category of whole-saler capitalists, who, like the Morimura-gumi, had, in the light of the changing times, transformed themselves into modern industrial capitalists.

5. CONCLUSION.

The outstanding feature of the industrial revolution in pottery in Japan

was that, while the Seto industrialists, who had been destined to play the role of its principal promoters, were deprived of their potentialities by the oppressive influences of the wholesaler capitalists in Nagoya, their role was taken over by the latter, who peremptorily undertook to initiate an "imported industrial revolution" through the importation of all needed modern mechanical equipment simultaneously. And, here, a typical example of the structural characteristic of Japan's capitalism in operation can be observed. Through a tie-up between the absolutistic political power and big privileged commercial capital,* it worked to prevent the attainment of a full-fledged *bourgeoisie* revolution by developing industrial capitalists.

In the meantime, the Nippon Pottery Company afterwards set up a number of collateral companies to form a gigantic combination, which came to occupy an undisputed position as the representative leader of the entire pottery industry of Japan. The fame of its products, known as "Noritake China," pervaded the world. The Seto industry, however, with its complicated structure of partial mechanization, small factory, *Manufaktur* and cottage producer, has up till now retained its status as medium or small-scale enterprise. The "Setomono", or the products of Seto, came to denote cheap goods, which would find their way mainly into the Asiatic and South Seas areas, besides the domestic market. Table VII. shows that in the case of principal foreign countries, the number of workers employed by a pottery factory averages between 102 and 237, but the number drops to a mere 9.5 persons in the case of Japan. This gives eloquent proof of the peculiar structural features of the industrial revolution in pottery in Japan.

Table VII. Operation Scale of Pottery Industry in Various Countries.**

	Number of factories	Number of workers	Workers per factory
Japan (1937)	6566	62232	9.5
Germany (1928)	290	99000	237.9
Czechoslovakia (1933)	36	3900	108.3
France (unknown)	180	30000	166.6
England (1930)	399	66118	165.7
U.S.A. (1933)	231	23632	102.3

* Ichizaemon Morimura was appointed special adviser of Nippon Ginkō (The Central Bank of Japan) in 1882 by Finance Minister Masayoshi Matsukata, and adopted Matsukata's son as his child. From this can be seen the close connection between government and big commercial capital at the time.

** Table VII. is from Mitsubishi Economic Institute: Study of the Structure of Pottery Industry, p. 14.